

Developing Marketing Strategies with a Marketing Simulation Tool in a Master's IT Class

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Abstract. This report examines the outcomes of running a specialized marketing simulation tool in the classes of Postgraduate IT students for a period of three consecutive academic years. A segmentation of the developed marketing strategies is provided in order to consider the performance mode of IT students in playing the simulation and the learning objectives they pursue by means of ‘concrete experience’ paradigm. A qualitative assessment has been made and the outcomes convincingly reveal that students do not “think about the whole picture” of building up a marketing strategy and respectively execute it in a short- or medium-term tactical pace. IT students begin playing the simulation with a strategic view often maintaining the status-quo position of the company under consideration. Their playing decisions are primarily based on checking out the dashboards of profitability and customer satisfaction in each quarter that notably reflects the direction – up and down – of their inputs. That feedback has made them encouraged or discouraged to continue, rather than to test the marketing strategy in an integrated manner.

Keywords: business-to-business marketing strategy, marketing simulation, postgraduate IT students, experiential learning.

Introduction

Learning to develop marketing strategies in a disciplinary context is a demanding educational process. Besides the use of conventional teaching approaches, marketing strategizing becomes an object of non-traditional interventions [4], such as Marketing simulations and Business games. The evolution from a conventional lecture-based course to an interactive, computer-based mediation entails an adoption of ‘concrete experience’ and ‘experimental learning’ categories in higher education.

The report considers selected elaborations that represent critical outcomes by means of using interactive tools into the educational process. Tonks’s reveals the ‘experimental learning’ category as the non-conventional modus of students’ own experimentation [5] when exercising with Marketing simulations. In addition, Lin and Tu propone the ‘autonomous, visibly thought learning” through games as an interactive way to deliver knowledge to students [4]. The real measures of claiming the mediation of the interactive tools in class are pursued learning objectives.

Introducing the online-based interactive tool *Marketing Simulation: Managing Segments and Customers*© (MS©) into classes of postgraduate IT students emerges as a valuable academic experience of implementing the ‘experiential learning’ paradigm. The simulation

was conducted during three consecutive academic years – 2009/10, 2010/11 and 2011/12 and throughout that medium-term period IT students participated in the non-conventional mode of developing marketing strategies.

A need for segmenting marketing strategies postgraduate IT students developed when simulating with the MS© has been identified in order to draw attention to the issue of students' perception of classroom sessions and debrief support, and of student attitudes to playing the simulation itself. The segmentation is based on the standard typification elaborated by Das Narayandas [1, 2]. Further, a research on the nature of the learning objectives that the postgraduate IT students are to pursue is explicitly provided. On the one hand, to learn about the application of Marketing concepts and techniques in an integrated manner, while operating in an unpredictable and competitive environment, requires the development and implementation of a data-driven analysis and planning system. On the other hand, to understand and practise personal skills in marketing management via individual (or team) work in the simulated environment requires coping with the problems of uncertainty and self-debriefing [6]. To affirm which learning objectives have been pursued in playing the MS©, a parallel is to be drawn between the students' involvement by means of their enrolment, participation and activity, on the one hand, and their personal scores, on the other.

1 Marketing Simulations in the Core of a 'Concrete Experience' and 'Autonomous Learning' Paradigm

1.1 Marketing simulations and the category 'experiential learning'

Marketing simulations are an interactive, computer-based model of a marketplace in which students analyze available data, take decisions concerning marketing variables, and then receive results on performance. The model is basically a series of mathematical formulae, which represent the structures, relationships and sensitivities in the simulated environment. The model can become a "black box" which the students are seeking to unravel [5].

Marketing simulation exercises embed ideologies that refer directly or indirectly to learning objectives. Learning objectives represent a real outcome measure of an experiential learning. Approaching the 'experiential learning', Tonks stresses the importance of immersion in *a concrete experience*. Observation and reflection on such experience leads the participants to the creation of their own active experimentation [5] and autonomous learning [4].

'Participants' are the recipients of a learning experience – commonly termed 'students'. Experiential learning is considered, employed and evaluated in relation to the students, those on the receiving end, but the 'participants' also include those who deliver – the instructors [5].

'Experiential learning' has been noted for its relatively high level of involvement by participants, rather than the more passive style that is a feature of more conventional learning experiences. By their very nature, marketing simulations exercises that are interactive and dynamic, and which require students to take responsibility for outcomes, tend to fall into the category 'experiential learning'.

From that perspective, Tonks traces and explains *his* understanding of marketing simulations into seven phases. Experiences could be best translated as a desire *to transmit*

basic core knowledge [5] and to provide awareness of the interactions between decision variables.

Although the requirements of ‘working in groups’, ‘coping with uncertainty’ and the ‘centrality of planning’ exist independently of an educational rationale, *a professional understanding is demanded* [5]. Therefore the subject matter of a Marketing course, supported by conducting marketing simulation, should have an instrumental, managerial, pragmatic and vocational orientation.

Marketing simulation exercises are worthy *in a pragmatic sense* [5], as they approximate to working reality. The responsibility to be aware of the realities and needs of the world of work are to be manifested in stated learning objectives [5].

The *process and context* [5] of marketing simulations makes the issue explicit. Learning objectives of a course design produce a significant shift: from “developing and implementing a data-driven analysis and planning system” towards “coping with the problems of uncertainty and managing the group involved effectively and efficiently”.

The considered reflection of the process and context in conventional learning (e.g. case studies) rises to the surface *critical skills* [5]. Although the prevailing part of the students respond very positively to the engaging, entertaining, fun aspects of the ‘concrete experience’ when running the marketing simulation, for some students the surface approach is taken to ‘deep-level’ learning [5].

1.2 Business Simulation Games and Game-Based Learning

In addition to marketing simulations, Business Simulation Games (BSGs) also present an effective alternative to traditional teaching methods. They provide a link between abstract concepts and real world problems. They offer practicality to the learning setting and give students the chance to practice decision-making cases. In their study, Lin and Tu pointed out that most students thought that they had gained a lot of management knowledge. According to the authors, learning through games becomes an interactive way to deliver knowledge, and game pathway would provide four advantages to support learning: (a) making knowledge accessible; (b) making thinking visible; (c) making learning fun; and (d) promoting autonomous learning [4].

The researchers Lin & Tu applied a soft-laddering technique to analyze how students perceive the outcomes of BSGs use. In the laddering technique, respondents are delineated by their behaviours as ‘gamers’. Students have been asked to differentiate game attributes in terms of their specific and individual importance, being questioned “why is this important to you?” The expressed goal is to determine sets of linkages between key conceptual elements across the range of 1) attributes, 2) consequences, and 3) values for the students. According to the frequency, i.e. the average number of times a ladder was mentioned, authors point major linkage paths out. As an important attribute when using BSGs, students outline ‘Teamwork’, which reflects in the ‘Emotional Exchange’ consequence and brings about the value of ‘Interpersonal Relationships’. In the same line, the decision-making process of considering ‘Market Diversity’ has as a consequence ‘Multi Thinking’ disposition and benefits the value of individual ‘Sense of Accomplishment’. Respectively, the linkage between the attribute, ‘Simulated Business Operations’, the consequence – ‘Understanding Business Concepts’, and the value of ‘Fun and Enjoyment of Life’ reveals that students not

only can learn or combine knowledge in the process of BSG education, but also feel the ultimate value of fun and enjoyment of life [4].

1.3 The Marketing Simulation: Managing Segments and Customers©

The Marketing Simulation© is an online-based interactive tool in which students play the role of the CEO of a manufacturer of medical motors Minnesota Micromotors [1]. Throughout the simulation, students make decisions regarding MM's marketing and operations strategy. They make important decisions – regarding product design, pricing, discount structure, marketing expenditures, sales-force size – that should collectively support an overall marketing strategy designed to achieve a combination of sustainable revenues and profits over 12 fiscal quarters. Performance is measured using both qualitative and quantitative criteria, including profitability, revenues, unit sales, market share, and customer satisfaction [2].

In this simulation, students define and execute a business-to-business marketing strategy. Customers are divided into market segments based on their requirements for two key motor performance features and price. Students must analyze each market segment and decide which new customers they want to acquire while also considering the loyal customers they must retain [1]. A successful go-to-market strategy requires careful consideration of a variety of interdependent factors. Students set a list price and then set discounts for each large market segment and for a segment of small customers who purchase through distributors. Students allocate sales and marketing resources for each targeted segment including setting the level of spending on marketing communications and market research. Students can listen to customer feedback through dynamic video interviews and gain important insights into the effectiveness of their marketing strategies. Ultimately students must achieve a sustainable revenue stream to maximize cumulative profit for the company [1].

The simulation is designed as a single-player exercise although the instructor can have the students play it in teams. Throughout its duration, the simulation provides students with an array of tactical decisions to make and retain a strong focus on marketing practice and theory. The structure of the simulation is interactive and enables multiple opportunities for self-debriefing and learning. The simulation is also flexible enough to allow students to use a variety of strategies successfully. There is no single correct solution [2].

Table 1. Learning objectives of the Marketing Simulation that vary according to the instructor's goals and the nature of the class [2].

No	Learning objectives
1	Understanding the link between marketing strategy formulation and effective implementation and execution
2	Using segment / customer needs analysis to make product design decisions and associated trade-offs
3	Understanding segmentation, targeting and positioning
4	Pricing strategies – setting and changing price
5	Managing channel conflict and maintaining consistency across multiple go-to-market channels
6	Assessing the importance of marketing strategy to match changes in the market over time (a static view is not sustainable)
7	Using hard and soft metrics to measure firm performance
8	Responding to competitive actions / reactions

- 9 Trade-offs between customer acquisitions and retention
 - 10 Distinguishing the differential impact of lumpy, fixed and variable costs in sales, in marketing, and in production
 - 11 Appreciating the relationships among customer satisfaction, customer buying patterns, customer loyalty, and firm profitability
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2 Developing Marketing Strategies using Marketing Simulation©

The need for segmenting student marketing strategies has been recognized in order to disclose the students' perception of the classroom debrief support and mode of their further proceedings. In that respect, a question is raised whether the postgraduate IT students prefer to play the simulation pragmatically or holistically. Running pragmatically the MS© is considered to be a subordination of an individual performance. The holistic *juxtaposition* is used to display students' ability to run the simulation having an integrated mind-map of developing and executing a marketing strategy over three fiscal years. It means considering the scope of the simulation by managing segment and customer behavior; monitoring competitive behavior; understanding market and considering market conditions; using marketing research; making investment decisions; leveraging by pricing decisions; and managing channel conflict.

2.1 Enrollment of Students

Launched by Harvard Business Publishing for Educators in 2009, the *Marketing Simulation: Managing Segments and Customers*© [1] has been conducted in the classes of postgraduate IT students during three consecutive academic years – 2009/10, 2010/11 and 2011/12. The data collected within that medium-term period of observing a similar process of 'experiential learning' in a Marketing Management course need to be analyzed and reported.

The IT students who participated in the MS© were doing their Master's in "Technological Entrepreneurship and IT Innovation", "E-business and E-governance" and "Information Systems". It is relevant to note their majors because the dominant number of students taking part in the Marketing Simulation are assigned the task of developing start-up business plans and go-to-market strategies. That educational background *should* get them motivated for the experiential learning through marketing simulation tools. However, the MS© is optional and paid, and therefore students are more likely not to be enthusiastic, but rather unwilling due to pragmatic considerations, such as not getting overloaded with academic duties. Nevertheless, the price is reasonable – \$12.50 for six-month full access with a lead option for more than half of any class. The actual number of participants might reach the moiety. But there are objective and subjective factors that influence the student's vote. And again, IT students are inclined to pay for the simulation, but not necessarily to play it, as it is shown in Fig. 1. Hence, the instructor should be concerned when students pay for their enrollment but actually run the simulation apathetically, moreover when they do not run it at all.

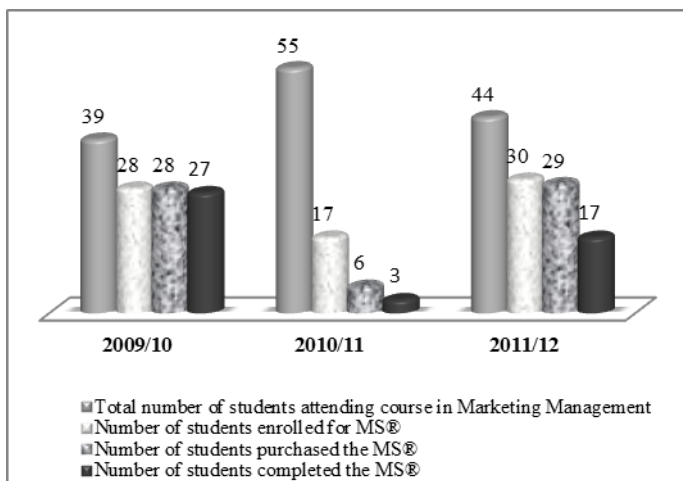


Fig.1. Overall student intentions to participate in playing online-based Marketing Simulation during the three sequential academic years between 2009 and 2012.

The introduction of the Marketing Simulation© in 2009/10 pulls 72% of students to purchase it. Although it appeared to be in demand, the purchases of the simulation dramatically dropped to 11% in the next 2010/11. It is more likely to consider it as a precedent because in 2011/12 the number of students purchased the simulation raised to 61%. However, more than a five-year data record is required in order to outline a trend of the actual postgraduate IT students' interest in learning by means of the marketing simulation tool.

The MS© exercise is optional, and the figures above could be considered as decent. Doubtlessly, should students consider their extracurricular tasks, they decide whether to purchase and play the simulation. Although they were not post-interviewed about the intentions and biases that had influenced their decision-making, IT students demonstrated them convincingly in an informal way. Basically, they pay attention to objective factors, such as attendance, employment, participation in student contests, etc. Certainly, students are also concerned by some subjective factors, such as motivation, interest in the course, individual perception of the instructor's capabilities and charisma, family.

Registration and purchasing the MS© does not necessarily mean that students need to learn by it. An important evidence in this respect is the number of students who actually ran and had the simulation completed. In the academic year 2009/10, student activity reached about 100 per cent – 27 out of 28 enrolled students, ran and completed the simulation. In 2011/12, student activity, compared to 2009/10, declined almost twice: the number of students who purchased the simulation was 29, but only 17 of them completed it. The academic 2010/11 is a precedent, as mentioned above: the number of students in class was the highest one – 55, but the number of those who purchased the simulation, was very modest: 6; and hardly 3 of them played and completed it. The whole picture is delineated in Fig. 2.

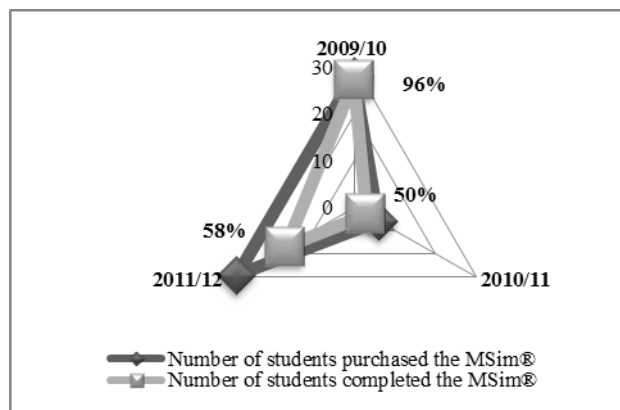


Fig. 2. Relative share of students who actually completed the Marketing Simulation© after purchasing it, compared to three sequential academic years between 2009 and 2012.

As it is displayed on Fig. 2, there is an obvious challenging discrepancy between the “black” triangle that covers the number of IT students who purchased the MS© and the “white” one – with those who completed it. The number of “whites” is growing smaller than the number of “blacks”. Approximately one half of the students do not complete the MS©, despite of having purchased it. This behavior is repeated in two consecutive academic years: 2010/11 and 2011/12.

Zooming in the 2011/12 corner of the triangle, figures claim that 17 out of 29 students have completed MS©, or alternatively, above 40% of the students have not completed the simulation. Four students have not run the MS© at all, although they have purchased it. The highest number of rounds (running MS© through 12 fiscal quarters) is 41 rounds per student. The lowest one is just once. Hence, the average number of rounds per student is 8. The most effective student runs totally 7 rounds and reaches the highest score in the group twice (81 point). The most diligent student runs the MS© 41 rounds and reaches the score of 80 points. Hence, the average efficiency of the rounds – in 8-9 completed rounds the individual result is above 50 points. And the overall group activity hesitantly surpasses 50 per cent.

The point raised here is that Master’s IT students ultimately refuse to run the MS©. Hypothetically, their arguments could be: ill-instruction, loss of interest, feeling of being not involved enough; MS© is a demanding and time-consuming process of learning. The shift away from hands-on, competitive, engaging activity towards more considered reflection on process [5], e.g. case studies, did not meet with universal approval. The previous experiences of some students, their learning styles and their resulting expectations are such that more conventional approaches create less stress [5]. In this respect, another research is required to differentiate the threats of using the MS© as an integrated instrument of an experiential learning in a course in Marketing Management.

2.2 Segmentation of Marketing Strategies adopted by the Postgraduate IT Students Exercising with the Marketing Simulation©

There are three general business-to-business marketing strategies that the students are debriefed to follow: 1) ‘Status quo Strategy’, 2) ‘Increase Price Strategy’, and 3) ‘Commodity Play Strategy’ [see Fig. 3]. Resolutely, Master’s IT students from the three academic classes adopt ‘Status quo Strategy’. It is the strategy through which students understand what the company ‘has in store’ so as to be long-lasting. The students primarily focus on managing the Large-Volume Customers (LVC) in the face of company’s Loyals and in accordance to the attractiveness of the other existing market segments. While strategizing and executing the *status quo*, students intuitively bring about the LVC Retention Spending as it is at the lowest risk and belongs to an appropriate cost effective structure. They adopt the ‘Status quo Strategy’ for a medium-term period of three fiscal years (the length of the simulation), but they understand they should consider that market situation and customer demands change over time and adequate decisions with specific product features improvements, investments, price, and sales-force accents are necessitated.

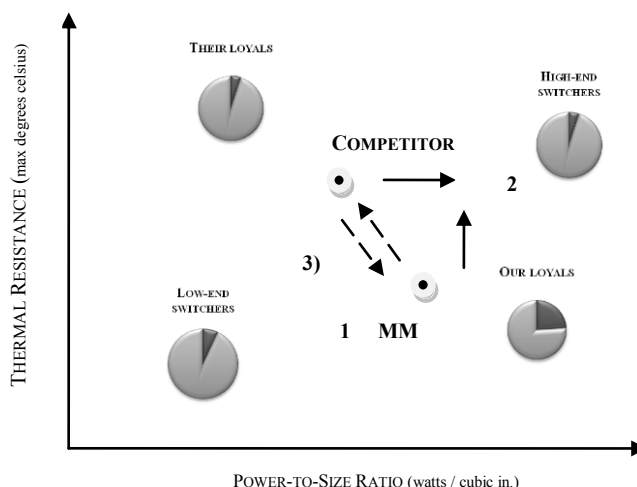


Fig. 3. General business-to-business Marketing strategies that students execute using the Marketing Simulation Tool. The scheme is developed by Das Narayandas [2].

Moreover, a pretty inherent manner to maintain status quo yet remains to set up ambitious goals as to expand company’s total market share at a high profit. Gaining a portion of a market share means, at least, obtaining new customers among the pursued – new or existing – segments, and consequential product investment. “Up to 12% market share” results display defensive and retentive decision on the part of the students. Individual best scores achieved endorse properly applied tactics of “retention of existing customer” and “market penetration” strategy. As an evidence, 70 % of the 2011/12 class hit \$50,000,000 – \$69,999,999 cumulative revenue.

The outcomes convincingly reveal that students do not “think about the whole picture” of building up a marketing strategy, and respectively implement it in a short- or medium-term

tactical pace. Definitely, IT students begin playing the simulation with a strategic view maintaining the status-quo position of the company. Their playing decisions are primarily based on checking the dashboards of profitability and customer satisfaction in each quarter that notably reflects the direction – up and down – of their inputs. That feedback has made them encouraged or discouraged to continue, rather than to test the marketing strategy in an integrated manner.

Despite of that students adopt one and the same “Status Quo Strategy”, they have differently distributed individual scores. There is no single correct solution. Students do not base the Investment policy in product performance on high levels of cumulative profit. They operationalize the improvements in product features. The IT students are focused on serving and paying for customer satisfaction, grounded on short-term profits. In the core of executing “Status Quo Strategy” is pricing, product investments and sales-force management considered entirely from the perspective of serving Loyals and the mixed-bag customers [3]. Alternatively, a transfusion towards ‘Price Increase Strategy’ appeared to be beneficial if high-profit customers are the targets.

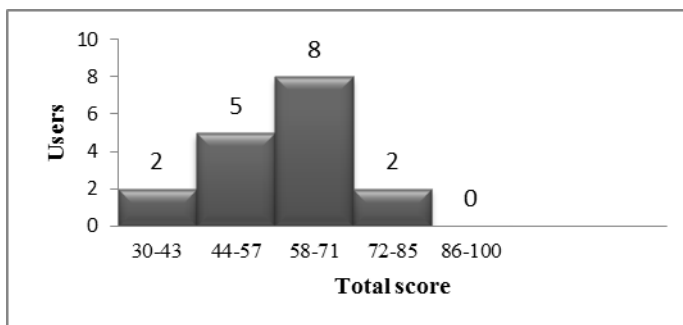


Fig. 4. Distribution of class results by best individual score (2011/12).

The prevailing and active part of the 2011/12 class (47%) has got above-average individual scores – in the quartile of 58-71 points [see Fig. 4]. There is no excellent score – above 85 points. But there are two interesting playing behaviours with the highest scores: of the most efficient student and of the most diligent student.

Conclusions and Considerations

This report was about the assessment of a marketing simulation exercise in terms of students’ ability to develop go-to-market strategy in the classes of Master’s IT students throughout three consecutive academic years – 2009/10, 2010/11 and 2011/12. A differentiation of two learning dispositions was represented – pragmatic and holistic – as a ground to determinate the dominant learning approaches of the IT students, evidenced by the learning objective pursued. Tonks’s ‘experiential learning’ of running marketing simulations and Lin and Tu’s ‘ladders’ of analyzing how students perceive the outcomes of BSGs use strengthened the argumentation of the simulation reasonability as a learning tool.

Master's IT students played the Marketing Simulation© pragmatically, responding to the engaging, entertaining, fun aspects of 'concrete experience', rather than holistically, thinking consistently in casual loops. They participated in *sort of* 'experiential learning', based, more or less, on 'the surface-approach' by picking out the main points of the marketing theory and practice and regarding product design, pricing, discount structure, marketing expenditures, sale-force size. Being provided with a rich array of tactical decisions, the students learned to use segment or customer needs analysis to make product design decisions and associated trade-offs. They learned to set and change prices and to appreciate the relationship between satisfaction, buying behaviour patterns and loyalty of customers and firm profitability [see Table 1].

Marketing strategies that Master's IT students developed using the simulation tool were predominantly based on "Status quo Strategy" with hybrid elements of "Increase Price Strategy". Students executed the adopted strategies by learning in pragmatic sense how to model decision casualties around some variables that they choose as constructs for successful simulation completion.

Although the Master's IT students positively accepted their involvement in experiential learning by playing the MS©, there were some open issues outlined for future administrative consideration and classroom representation. Student motivation for "learning by playing" how to develop business-to-business marketing strategies appeared to be crucial. Students needed to have a clear concept articulation of the process of "learning before and alongside playing". Hence, the instructor's role and classroom debrief sessions should strengthen their vitality of participation. The issue of "self-debriefing and learning" anticipated a cognitive empowerment of student's willingness and attitude. Instructors should incline students to think in 'ladders' derived from the simulation, and determined by sets of linkages between the attributes, consequences and values important for them. Moreover, the students had to perceive playfulness and learning performance positively because these influenced students' satisfaction and further influenced their intention to learn experientially.

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